

# Regional Document Supply Networks and Their Influence on National Document Supply Networks in China

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## Abstract

**Purpose** – To describe typical regional document supply networks in China through detailed discussion of their framework, service modes, and influence on the national document supply networks.

**Design/methodology/approach** – This paper highlights various kinds of regional document supply networks in China that serve as document resource sharing cooperation networks within provinces, cities, and university towns. Their framework, service modes, and influence on the national document supply networks are discussed, followed by suggestions for improvement.

**Findings** – Regional document supply networks have their natural advantages in local financial support and extensive local coverage, and are capable of providing fine service to meet various user needs in a timely and economical manner. They have become an important part of and complement to national document supply networks.

**Originality/value** – This paper studies regional document supply networks in China, a topic which has rarely been addressed in the international library literature. It is based on the authors' original presentation at the 13<sup>th</sup> Interlending & Document Supply Conference, October 16-18, 2013, in Beijing, China.

**Keywords** Regional Document Supply Network, Interlibrary Loan, Document Delivery, China

**Paper type** Viewpoint

## Overview of regional document supply networks in China

Document supply service, one of the most effective forms of resource sharing, comprises both interlibrary loan for returnable resources and document delivery for non-returnable resources. Regional document supply networks in China normally consist of libraries in the same general area, affiliated with the same social organization, having similar social and cultural backgrounds, which makes it easy for them to form a common ground. As a matter of fact, regional document delivery networks have become the most important component of and complement to the nationwide document supply networks. There are three main forms of regional document supply networks in China which serve as document resource sharing cooperation networks within provinces, cities and university towns.

*Regional networks within provinces*

Prior to 2000, interlibrary loan service was provided only in a few provinces and on a limited scale. Users had to use universal library cards to borrow books from other libraries. That was the primary form of interlibrary loan and all processes were manual. Around the year 2000, some provinces started to develop an ILL system to support ILL services. Hainan province installed the same automated library system (ILAS software) in every academic library, upon which they developed ILL software and carried out ILL service led by Hainan Provincial Education Commission (Huang *et al.*, 2003). Another example is that academic libraries in Tianjin used the same library automatic system Unicorn to build a combined retrieval platform in 2002. Their users can log on to the union catalog provided by the web server to access collections in real time, make a reservation, or renew loans online. This measure made interlibrary loan as easy as borrowing from one's own library (Li *et al.*, 2009).

In addition to that, the introduction of Chinese Academic Library & Information System (CALIS) further fostered the development of provincial document supply networks. CALIS has established a three-tiered service network consisting of national centers, provincial centers, and member libraries. Fifteen provincial centers such as JALIS (Jiangsu Academic Library & Information System), HALIS (Henan Academic Library & Information System) and TALIS (Tianjin Academic Library & Information System) [1] have been built with the support of the provincial education commission and/or library committee in order to strengthen the service capabilities of CALIS. Since then, regional document supply networks within other provinces also have been established. They use CALIS ILL/DD system which was developed and put into use in 2004 to offer ILL/DD service. CALIS has built provincial centers in almost all provinces, municipalities directly under the central government, autonomous regions and even Macao the special administrative region in China. Having rich collections and mature ILL networks of their own, Taiwan and Hong Kong libraries are the only two exceptions that don't use CALIS service.

#### *Regional networks within cities*

Typical regional document supply networks within cities mainly emerge in the areas of Beijing and Shanghai where higher education is prosperous and all kinds of universities and colleges coexist. Famous and well-run regional document supply networks within cities include Beijing Academic Libraries Coalition, BALIS (Beijing Academic Library and Information System), SIRN (Shanghai Information Resources Network) and Shanghai Education Libraries). Other typical municipal document supply networks include Guangzhou Academic Libraries Coalition in Guangdong Province and Minnan Academic Libraries Coalition among three cities of Xiamen, Zhangzhou and Quanzhou in Fujian Province.

#### *Regional networks within university towns*

The university town is a new mode of running schools in order to keep up with the rapid development of higher education in China in the recent years. Over 60 university towns have emerged in China, such as Orient University Town in Hebei Langfang, the first university town in China built in 1999, Shenzhen University Town, Chongqing University Town, XianLin University Town in Nanjing, and Fuzhou University Town in Fujian province. Universities, colleges, research institutes, and university level institutes are centralized in University Towns. Geographic proximity and convenient communications make it easier for them to set up a document resource sharing coalition and to launch interlibrary loan and document delivery services.

### **Framework of regional document supply networks**

Generally speaking, a regional document supply network is composed of a management center, central libraries, and member libraries (Yang, 2010). The management center is normally a virtual institute led by the local education commission and/or library committee and is made up of directors of member libraries. The responsibility of management center involves: 1. to establish regulations and ordinances for the network, 2. to define the duties of central libraries and member libraries and balance interests among members, 3. to organize and coordinate the day to day service of the network, 4. to build good relationships with national document supply networks, and 5. to promote the network. Central Libraries are commonly composed of one or several libraries with rich collections and the capability of providing good service. Their roles are to offer ILL/DD service, identify problems and collect suggestions, calculate the number of registered users and system usage, offer technical support to maintain the platform, and give regular reports to the management center. Member libraries are to authorize users, oversee usage of ILL/DD service, and promote the service on campus. With the enhancement of ILL/DD system and a change of service mode from a centralized to distributed mode in recent years, many member libraries have become service providers as well as service consumers. As a result, a noticeable change is that some regional document supply networks no longer have central libraries, and all member libraries have become equal partners.

In addition to central libraries, some regional document supply networks have set up specialized libraries. When a user can't locate the materials they want within their regional network's member libraries, they can submit requests to these specialized libraries. BALIS has six specialized libraries: Peking University Health Science Library, Beijing Jiaotong University Library, Library of the University of Science and Technology Beijing, Beijing Normal University Library, Beijing University of Posts and Telecommunications Library, and the Library of Renmin University of China.

## **ILL/DD system used by regional document supply networks**

In my opinion, ILL/DD system is the main factor that determines the service mode of document supply networks. There are two kinds of ILL/DD system that are widely used in regional document supply networks in China. One is CALIS ILL/DD system, while the other is a commercial ILL/DD system.

CALIS ILL/DD system is commonly used by academic libraries in China. This system is compliant with the ISO ILL 10160/10161 Protocol and has been used by about 60 service-supply libraries from 2004 to 2009 (Yao and Zeng, 2012). Beginning in 2010, CALIS Phase 3 improved its ILL/DD system by incorporating software-as-a-service (SaaS) technology (Zhong, 2009) and allowed academic libraries to rent this system for free through provincial centers. There are currently over 1000 libraries in China using CALIS ILL/DD system to submit requests among one another. Among them, about 300 libraries are active participants.

In addition to the CALIS ILL/DD system, some commercial companies have taken part in ILL/DD service for academic libraries. Chaoxing Company is a typical one with its two products Duxiu and Bailian. [4] It helps some regional document supply networks to integrate libraries' collections and builds a one-stop document retrieval platform in which the document delivery service module has been embedded. Users can submit requests online and get documents by email rapidly and conveniently.

Another option is to run the CALIS ILL/DD system and a commercial ILL/DD system concurrently to provide service to users. Such examples include ZADL (Zhejiang Academic Digital Library) [5] and Fuzhou University Town.

It is worth noting that some regional document supply networks do not even have an ILL system. They simply

issue universal library cards and allow users to borrow from each member library directly. Beijing Academic Libraries Coalition is one such case.

## **Service Mode**

### *Distributed mode prevails over centralized mode*

The service mode of ILL/DD can be divided into either a centralized mode or distributed mode with respect to the network's organization and management. Centralized mode means that central libraries or specialized libraries provide ILL/DD service to member libraries from their own collections or from other libraries participating in the agreement, while a distributed mode means that all libraries in the regional network can not only be service consumers but also service providers (Fan and Zhan, 2005). Prior to 2010, only about 60 service-supply libraries used the CALIS ILL/DD system and offered ILL/DD services to other member libraries, so provincial document supply networks are in a centralized mode. After CALIS Phase 3 launched its enhanced ILL/DD system, any academic library can sign an agreement with CALIS and use the system to submit requests to each other. Meanwhile, most commercial companies adopted the distributed mode to cater to the demands of the market. Therefore, the distributed mode has become more prevalent over the past three years.

The fact that the distributed mode has been widely used in regional document supply networks shows that document supply in China no longer relies on a limited number of central libraries with rich collections to offer ILL/DD service; instead, it has moved to union document resources guarantee as well as union services.

### *Mediated vs unmediated modes*

The difference between mediated and unmediated mode is whether there is a librarian working as a medium between users and document suppliers. The mediated mode needs a librarian to authorize users, choose document suppliers, submit requests to those suppliers, receive documents from the suppliers, and forward them to users. As for regional document supply networks in China, those regional document supply networks that use CALIS ILL/DD system are still in a mediated mode. Yet nearly all the commercial ILL/DD systems support the unmediated mode at variable scales. BALIS ILL system was developed by Beijing Chuangxun Future Software Technique Co., LTD. Users can choose service providers and submit requests directly without any librarian working as an intermediary. Only user authorization and the return of borrowed documents must still be handled by librarians. Chaoxing Company's two products, Duxiu and Bailian, can send document requests to the best service supplier automatically and full text will be sent back by email. User authorization can be controlled by IP address.

But the unmediated mode brings about some headachy problems that have been mentioned many times in various research papers. One typical example is that interlibrary loan service users keep asking for documents within the collection of their own library. But it can be and is being solved by technological means to some extent. In view of development, unmediated mode is the tendency in the future, but mediated mode will still exist for quite a while.

### *Automatic vs manual modes*

From the current situation, CALIS union catalog, CALIS Current Contents of Western Journals, CALIS unified retrieval system eDU, and other commercial integrated platforms can all interface seamlessly with document delivery systems. So document delivery service can be processed in a fully automated manner so far. On these platforms, resources can be retrieved and the means of access will be listed. Full-text documents are available

automatically when the user is authorized, or else one can request them through the document delivery service. The system will forward requests to the owning library and deliver those documents through email or FTP server. Except for application making which still requires the help of a librarian, all the other processes in CALIS are operated automatically.

In spite of the afore-mentioned advances, interlibrary loan is still a much more manual operation, not to mention that many commercial platforms don't support ILL service. Even CALIS ILL/DD system, with its relatively well designed processes, can hardly cover the whole procedure. The process of interlibrary loan is really too burdensome. As a supplier, library staff must borrow books from the stacks, ship them by surface mail or express delivery, urge borrowers to return the documents, and then reshelve them in the stacks. As a requestor, library staff must make an inventory when the books arrive, inform users by email or phone, record the pick up time, users' name, library card and book titles, repeatedly remind them to return the materials on time, classify the returned books according to their suppliers, and then mail them back to those suppliers. All those operations mentioned above are hardly covered by the ILL system and must be done manually.

## **Influence to nationwide document supply networks**

Regional document supply networks are a crucial component of the national document supply network. On one hand, they rely on national document supply networks to a great extent. On the other hand, they have their own advantages not found in national document supply networks. Those advantages include comprehensive regional coverage, fine and timely service and so on, which enable them to exert helpful influence over national document supply networks.

### *Local financial and policy support to promote national document supply networks indirectly*

Regional document supply networks enjoy local financial and policy support in addition to those of national document supply networks, so that they can promote document supply service in depth through incentives like financial subsidies and awards. Such promotion is a dynamic driver of further development, both of national and regional document supply networks.

Though some national document supply networks such as CALIS and CASHL (the Chinese Academic Humanities and Social Sciences Library) offer to users subsidies ranging from 50% to 100% according to region and special offers, there still are documents too expensive for users to afford, such as standards, reports, and those supplied by overseas libraries. What's more, many users demand that the library bear the responsibility to satisfy users' need as far as possible and not pass such costs on to users. This problem can be solved well in regional document supply networks.

Regional document supply networks usually have the financial support from local government which allow users to get documents for free or at an affordable price. For those who use Duxiu and Bailian, they only need pay for the integrated platform and there's no charge for document delivery service. For those who use CALIS ILL/DD system, BALIS document delivery service (BALIS has two systems for ILL and DD separately, and DD system changed to use CALIS ILL/DD system in late 2012) and TALIS offer the other 50% subsidy to users in addition to the 50% subsidy of CALIS. In this way, users can get documents for free. BALIS ILL service pays the logistics costs; users only pay for loss, damage, and late return. SIRN members only need to pay logistics and pay nothing for borrowing. Furthermore, some regional document supply networks also allocate financial rewards to those supplying libraries to encourage them offer ILL/DD service zealously and at a low price. Fuzhou University Town awards 5 YUAN per

request for document delivery and 10 YUAN per request for interlibrary loan. Both subsidies and awards not only encourage users to ask for what they want but also stimulate libraries to offer better service. As regional document supply networks rely heavily on national networks, their progress and development encourage their national counterparts to extend their service to a degree that they otherwise could not have reached.

#### *Introduce more member libraries into national networks*

The emphasis of CALIS Phase 3 is relying on the influence of provincial centers (or shared domains) to push services into universities and colleges of all kinds and all levels in their regions. That is to say, national document supply networks have come to realize the advantages of their regional counterparts and take measures to build on such advantages to the benefit of all involved. Regional networks can take advantage of governmental measures and their local connections to attract more local libraries to join their networks. That also means introducing more member libraries into national networks. In this way, regional member libraries benefit from the rich collections and favorable policies of the national networks. In return, however, new member libraries should contribute their bibliographic holdings to national union catalogs. This benefits national networks by way of expanding their union catalog holdings and fostering a national document guarantee system. This is truly a win-win strategy of development. Taking Fujian Province as an example, the provincial center library has introduced 54 libraries to CALIS during the last 2 years alone.

#### *Establish relationship with cross-system members*

In China, public libraries, academic libraries, and related institutes are managed by different administrative departments, and financial support also comes from different sources. It is quite difficult, therefore, for them to be united and share resources with one another and so regional document supply networks actually help their national counterparts gain indirect access to various local libraries and institutes. With local connections and contacts over time, it's easier for regional networks to establish relationships with cross-system members in the region, such as local public libraries, research institutes, scientific information institutes, archives, statistical bureaus, patent offices, and information companies for close geographic proximity and the same cultural background. A case in point is SIRN, composed of seventy-eight public libraries, academic libraries, and scientific research libraries, which makes it a regional cross-system model in China (Fang, 2010). Relying on regional document supply networks to develop cross-system members will expand the pool of potential suppliers and maximize the resources available to the national document supply networks.

#### *Highlight regional special collections as alternatives to national networks*

Due to historical and geographical connections, some local libraries have unique collections of documents featuring local characteristics. Regional document supply networks have the closest access to recommend such collections to users. By highlighting local special collections, regional networks can help to reduce the burden on national networks by diverting some requests to local suppliers and thus optimizing both regional and national resources, and providing alternative document suppliers to regional and even national users with specialized research interests.

### **Suggestions for Improvement**

Regional document supply networks have been making progress in recent years, and they have been an important

component and complement to national document supply networks. But there's much room for improvement.

#### *More resourceful funding*

Up to now, regional document supply networks depend almost completely on local governments for financial support, which is subject to fluctuation due to change of officials, shortage of local funds, expiry of projects, or other unforeseeable reasons. Service cessation or price rise may happen in the following years which jeopardizes the development of regional document supply networks. To change such a situation, they must be more resourceful in funding. In addition to securing governmental financial support, they can turn to local communities for funding. For local firms and businesses, they can raise funds by providing paid services like information counseling, commercial ancillary service, and project development support. For museums, cultural centers, and public media, they can raise funds by cooperating to host art exhibitions, popular science projects, and local cultural events. For the general public, donations can be raised by host lectures and activities of interest to the public or which promote the general welfare of the public. In this way, it will not only open more channels for funding, but also lend more insight and depth to the role of regional networks.

#### *Library identity orientation*

At the current stage of development, regional networks are still dependant on their national counterparts. Libraries in regional networks tend to imitate the model of their national counterparts, at the risk of weakening their specialties or losing their unique identities. Such imitation will waste limited resources by duplicating collections and blur their distinction in regional networks.

To regain their identity, it is necessary for them to sort out their strengths and weaknesses and establish a library-identity orientation. Based on this orientation, local libraries can focus on establishing a series of databases with characteristics of subject, region, and language, then consolidate these into an integrated resources platform for document delivery service. These databases should not be confined to published resources. Instead, any unpublished resource that might be useful to users should be collected, such as grey literature, scientific data and images, statistics, episodes, trivial matters, etc. In this way, the characteristics and unique identities of each member library will be preserved and the basis for future knowledge delivery will be laid.

#### *Expand sharing scope*

Document sharing within regional networks tends to be limited in scope. Many libraries are unwilling to share documents they value highly, which include foreign publications, feature collections, ancient books, books and journals published within 1911-1949, and so on. Such unwillingness stems from the following concerns: 1) concerns about protecting rare and delicate documents, 2) worries about losing their dominance after sharing, or 3) concerns about copyright infringement.

To expand the scope of document sharing, regional networks should provide more incentives for the sharing of such treasured documents. These incentives might include: 1) allocating funds as a reward for supplying libraries in proportion to the volumes of valued document shared; 2) allowing supplying libraries to charge higher fees for sharing valued documents or limiting them to true researchers, with raised funds allocated to the upkeep of such documents; 3) digitizing rare and delicate documents for sharing instead of loaning the original copies; or 4) signing legal documents with users to prevent copyright infringement.

### *Raise research momentum*

Research is a driving force of development, and the development of regional document supply networks is no exception. Unfortunately, there is not much research momentum within regional networks, which is reflected in the limited amount of literature on regional document supply networks. When regional networks are losing research momentum, they are also losing insight and vision for future development. Without insight and vision, regional networks will remain as they were, with much potential lying wasted.

It will take the efforts of both regional networks and individual librarians to raise research momentum. On the one hand, regional networks can take advantage of their connections to host more seminars concerning the role, function, and development of their networks. They can invite famous scholars and researchers to the seminars, so that librarians on the front lines will have exposure to the latest development and form an across-the-board view of the regional networks. In addition, they can raise funds as awards for excellent research papers from librarian-researchers. On the other hand, individual librarians should try to find a balance between routine work and research efforts. This will not be easy since a lot of librarians have heavy workloads. But they have unique advantages: access and channels to rare and latest documents and first-hand feedbacks of users. Given time and efforts, individual librarians will be able to be productive in both routine work and research. In short, only with concerted efforts of both regional networks and individual librarians can research momentum be increased and more support for development be found.

## **Conclusion**

Regional document supply networks have been changing continuously with the development of technology and users' needs, especially in the most recent three years. Their framework, ILL/DD system, and service mode are all influenced deeply by national document supply networks. Meanwhile, regional document supply networks are taking advantage of their unique roles to affect and contribute to national document supply networks. If regional document supply networks can learn from others' strong points to offset their weakness, they can work better and better in the future.

## **Notes**

1. Additional information about regional consortia in China can be found at the websites for JALIS (Jiangsu Academic Library & Information System), [www.jalis.org.cn/](http://www.jalis.org.cn/), HALIS (Henan Academic Library & Information System), [202.197.191.235/](http://202.197.191.235/) and TALIS (Tianjin Academic Library & Information System), <http://www.tjdl.cn>.
2. URLs for the regional document supply networks: BALIS (Beijing Academic Library and Information System), <http://balis.ruc.edu.cn>, SIRN (Shanghai Information Resources Network, <http://www.libnet.sh.cn/newsirn>) and Shanghai Education Libraries (<http://www.shelib.edu.cn>), Guangzhou Academic Libraries Coalition (<http://www.th.superlib.net>) in and Minnan Academic Libraries Coalition (<http://www.mndqlib.net>).
3. Key university towns include: Orient University Town, <http://www.ouc.gov.cn> in Hebei Langfang, the first university town in China built in 1999, Shenzhen University Town at <http://lib.utsz.edu.cn>, Chongqing University Town, [www.cquc.net](http://www.cquc.net), XianLin University Town in Nanjing, <http://xleu.njnu.edu.cn>, and Fuzhou



University Town in Fujian province, <http://www.fulink.edu.cn>.

4. See [www.duxiu.com](http://www.duxiu.com) for information on Chaoxing Company's Duxiu ILL/DD system, or [www.blyun.com](http://www.blyun.com) for information on it Bailian ILL/DD system.
5. See <http://zadl.zj.edu.cn> for information on ZADL, the Zhejiang Academic Digital Library.

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